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ABSTRACT

This study attempts to analyze some aspects of open education by examining the effects of the teacher's authority style. This aspect of the structure of the school is examined in conjunction with certain status characteristics of the school population. The following variables are considered in the study: (1) community type; teacher race, sex, experience, training; and student race, sex, and socioeconomic status; (2) teacher-reported practices in controlling students' activities and student report of teachers' use of authority; and (3) student sense of self-reliance, sense of competitiveness, aspirations for college, and academic achievement. The study utilizes factor analysis, multiple regression analysis, and analysis of variance to examine survey and achievement data from a random sample of elementary schools. Some findings resulting from the research are: (1) both black and white teachers operate with a lower degree of openness in black classes and, conversely, a higher degree of openness in white classes; (2) in general, openness was lower in the classrooms of more experienced teachers and higher in the classrooms of teachers who had more training; and (3) open education seems to have only a slightly more favorable effect than traditional education on feelings of self-worth; it may produce higher aspirations among low-socioeconomic-status students and more cooperative behavior among students. It is concluded that an open teaching style is relatively rare and most likely to be found among higher socioeconomic students and nonblack students. It also appears to be of minor importance to various outcomes, notably self-reliance and achievement. (JD)

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# TEACHERS' USE OF AUTHORITY AND ITS RELATIONSHIP TO SOCIOECONOMIC STATUS, RACE, TEACHER CHARACTERISTICS, AND EDUCATIONAL OUTCOMES

by

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## Introduction

In recent years educators have shown a renewed interest in progressive-era ideas associated with "open schools." This study attempts to analyze some aspects of open education by examining the effects of a major component of it--the teacher's authority style. This aspect of the structure of the school is examined in conjunction with certain status characteristics of the school population, and certain other variables which measure the social context, notably school climate variables.

The research takes some of its direction from studies of school conditions (Coleman, et. al. 1966, Jencks 1972, Moesteller and Moynihan 1972, etc.) and from studies of the social environment of schools (McDill et. al. 1971 Brookover et. al. 1973, 1976) as well as studies specific to open education (Epstein and McPartland 1975, Evans 1972, Franks et. al. 1974, Bennett 1976).

The population from which the sample was drawn was the set of all Michigan elementary schools which included both 4th and 5th grades during the 1974-75 school year. The total data set provided some information on 529 teacher/class combinations. The variables included in the study are listed below.

Background Variables

Community type; teacher race, sex, experience, training; student race, sex, socioeconomic status

School Variables

(First-order) School and class size; Five teacher climate variables; Teacher reported practices in controlling students' activities (TOPEN)

(Second-order) Five student climate variables; Self concept of academic ability; Student report of teachers' use of authority (SOPEN)

Outcome Variables

Sense of self-reliance, Sense of competitiveness, Aspirations for college, Student achievement

All scales were found to have a Cronbach's Alpha reliability of .65 or higher.

## The Relationship Between the Two Reports of Openness of Authority Style

Since the student and teacher surveys were administered at the same time, we would expect a certain amount of agreement between them as to the degree of openness of the teachers' authority style. That is, we would expect to find a significant correlation between SOPEN and TOPEN. At the school level of analysis, the correlation was .77 ($N=108$, $p \leq .001$); at the class level the correlation was .39 ($N=526$, $p \leq .001$).

## The Validity of the Openness Variables

The reliabilities of SOPEN and TOPEN are adequate and their reasonably strong correlation indicates that they are measuring the same phenomenon. If we can determine that that phenomenon is related to open education then we may conclude that the scales are valid as well.

In order to judge their validity, the student and teacher surveys were administered at two schools which had been identified by the researcher and others as open elementary schools.

An evaluation of one of the schools entailed use of an open school observation instrument which was a slightly modified version of the one developed by Walberg and Thomas (1974). The instrument was used by observers from a nearby university as well as by parents of children at the school. The results showed a high degree of agreement between the two groups of observers, and both groups showed a close approximation to the ideal open school behaviors.

Thus we can conclude that the school does appear to represent the open education themes identified by Walberg and Thomas.

The positive evaluation of this open school (called Central) led to the expansion of the program to another school in the same district (called Northern). Some of the teachers and students from Central transferred to Northern thus intiating some of the open practices developed at Central in the new location. If the SOPEN and TOPEN variables measure some part of these schools' openness, then we would expect that they would have high SOPEN and TOPEN scores. The tables below show where Central and Northern ranked among all schools surveyed.

Table 1. Rank of Central and Northern Open Schools Among 108 Schools Surveyed

| | Grand mean | Open Schools' means | Rank in Sample | Number of st. dev. above mean |
|---|---|---|---|---|
| SOPEN | 15.36 | 24.21 (Central)<br>23.19 (Northern) | First<br>Second | 4<br>4 |
| TOPEN | 16.87 | 26.00 (Central)*<br>25.00 (Northern) | First<br>Third | 3<br>3 |

*Some of the teachers at Central and Northern did not respond to all the items in the TOPEN Scale. Consequently, the mean response of the items that were answered was substituted for the unanswered items.

Table 2. Rank of Classrooms in Central and Northern Open Schools* Among 529 Classrooms Surveyed

| | Grand mean | Open classroom means | Rank in Sample | Number of st. dev. above mean |
|---|---|---|---|---|
| SOPEN | 15.16 | 25.70 ($Central_3$) | First | 2 |
| | | 24.45 ($Northern_1$) | Second | 2 |
| | | 23.63 ($Central_1$) | Third | 2 |
| | | 22.75 ($Central_2$) | Fifth | 2 |
| | | 22.26 ($Northern_2$) | Seventh | 2 |
| TOPEN | 16.72 | 28.00 ($Northern_1$)** | First | 2 |
| | | 26.00 ($Central_2$) | Second | 2 |
| | | 26.00 ($Central_3$) | Second | 2 |
| | | 26.00 ($Central_1$) | Second | 2 |
| | | 22.00 ($Northern_2$) | 23rd (tie with 14 others | 1 |

In view of these findings, it seems reasonable to conclude that SOPEN and TOPEN measure some important part of the openness of school programs. We take care to note that we are not arguing that whenever one finds a class or school which measures high on the SOPEN or TOPEN scales that one has found an instance of open education. Obviously, it is possible for a class to measure high on SOPEN (for example) but exhibit few other characteristics of informal education.

*Three classes were surveyed at Central Open, two at Northern Open.

**These teacher scores are, of course, not means but rather individual scale scores.

## The Prevalence of Openness in Michigan Elementary Schools

A principal finding of this study is that a limited degree of openness is present in Michigan elementary schools. The frequency diagram for school-level openness (below) makes this point very clear. The two cases farthest to the right (i.e., most open) are Central and Northern open schools. As the frequency diagram shows, only 6.5% of the surveyed schools lie above the mid-point of the scale and can be described as "sometimes to often" open, while the remaining 93.4% of schools can be described as "sometimes to seldom" open.

Another important finding with respect to SOPEN is that only one majority-black school fell above the grand mean of all schools. Class level data with respect to race are not quite so one-sided, as the following table shows.

Table 3. Proportions of White and Non-White Classrooms in Total Survey and In Two Sub-Categories Above the Mean of the Student Reported Openness Scale

| Openness Categories | N | Racial Categories: Percent White | Racial Categories: Percent Non-White |
|---|---|---|---|
| All Classes | 526 | 62.5 | 37.5 |
| Classes Above SOPEN mean | 227 | 81.5 | 18.5 |
| Classes Above SOPEN mean plus one standard deviation | 69 | 92.8 | 7.2 |

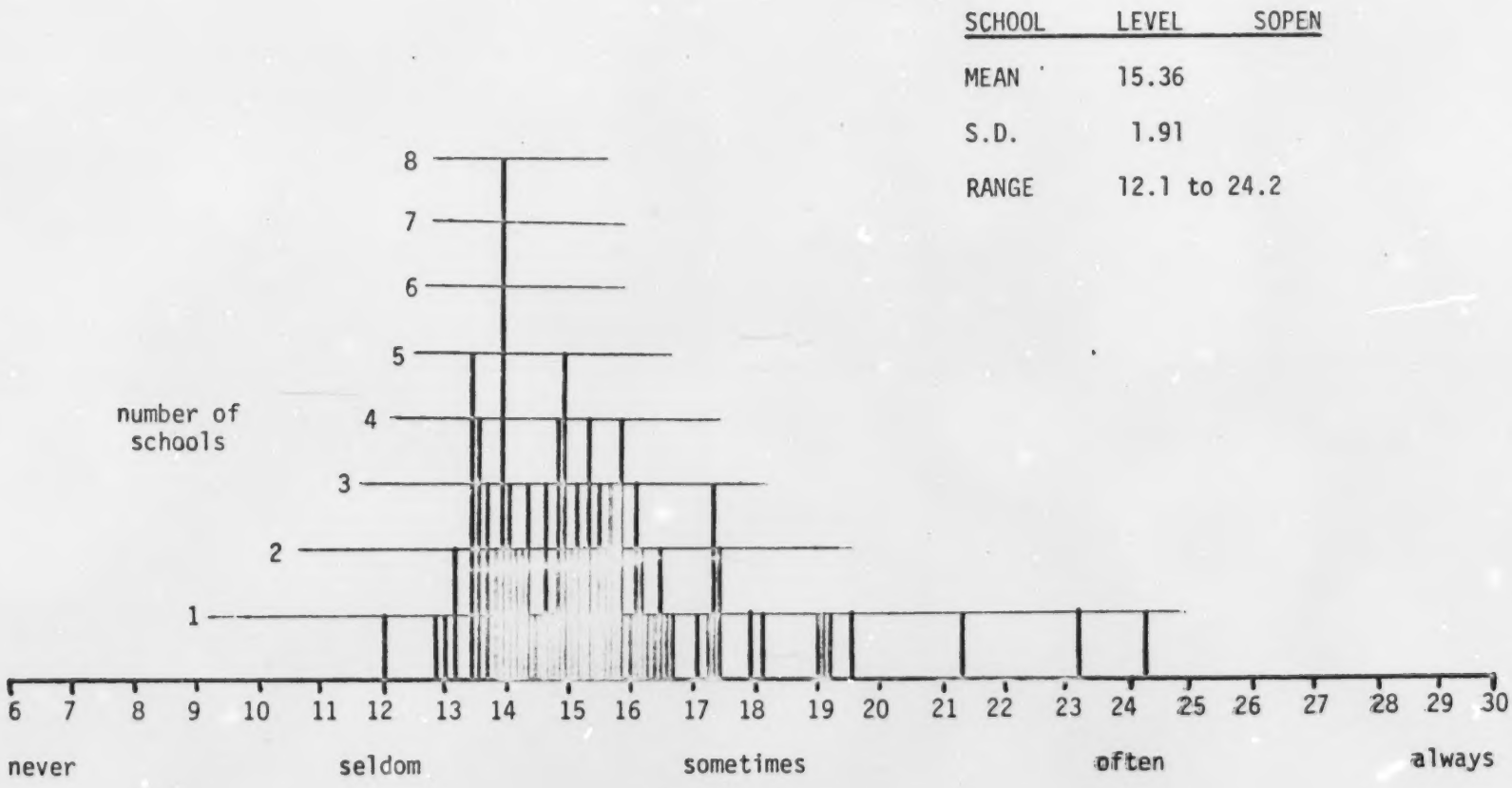


Figure 1 Frequency Diagram of Students' Reports of Openness (SOPEN) for All Schools Surveyed

In general, the greater the degree of openness, the smaller the proportion of black classrooms. These findings indicate that a relationship exists between race and openness: in particular, students in mostly black classes seem to be the object of more teacher control of their activities than students in mostly white classes.

Further analysis of the relation between race and openness was undertaken by performing an analysis of variance on SOPEN and TOPEN broken down by both race of teacher and race of class. In this analysis, a black class is defined as a class where more than 80% of the students are black; a white class is defined as a class where more than 80% of the students are white. Results of the analysis of variance are shown in the table below. The data base for this analysis was all the classrooms from the randomly selected schools.

Table 4. Class Level Analysis of Variance of Student and Teacher Reported Openness Broken Down By Race of Teachers and Race of Students

| | Teacher ⟶ | Black | | White | |
|---|---|---|---|---|---|
| | Class ⟶ | Black | White | Black | White |
| SOPEN | mean | 14.23 | 15.62 | 14.06 | 15.54 |
| | s.d. | 1.66 | 2.30 | 1.08 | 1.97 |
| | n | 109 | 6 | 45 | 264 |
| | | F = 24.70 (p ≤ .0001) | | | |
| TOPEN | mean | 15.48 | 16.40 | 16.36 | 17.04 |
| | s.d. | 3.31 | 1.52 | 2.97 | 3.06 |
| | n | 105 | 5 | 44 | 252 |
| | | F = 16.72 (p ≤ .0001) | | | |

These results indicate significant differences among the four classroom racial combinations for both SOPEN and TOPEN. Furthermore, the indication seems to be that both black and white teachers operate with a lower degree of openness in black classes, and conversely, a higher degree of openness in white classes.

However, it is possible that the relation between race and openness exists because of a social class factor (which is closely related to race). In order to examine the relation between race and openness more closely, correlations between SOPEN and TOPEN and the proportions of blacks and whites were also obtained. At the class level, both percent black and percent white were significantly correlated (-.12, .14, respectively) at the .05 level with SOPEN. However, when controlled for SES, both of these relationships become non-significant. If the correlations between openness and SES were similarly found to "depend" on the effects of race, we would have to conclude that SES and race are, in a sense, statistically indistinguishable. That is, each would eliminate the significant relation that the other has with openness. However, the correlation between class-level SOPEN and SES (.32) remained significant when controlled for both percent black and percent white. Thus, we may tentatively conclude that the link between race and use of open practices in schools "depends" on the relationship between SES and open practices.

## The Relationship Between Openness and Social Class

In the foregoing section we found the relation between SES and openness to be "stronger" than the relation between race and openness. The following table shows that openness and SES are related in a particular way in specially selected groups of low and high TOPEN teachers.*

* A low TOPEN teacher is defined as any teacher with a TOPEN score below ½ standard deviation below the mean; a high TOPEN teacher is a teacher with a TOPEN score above ½ standard deviation above the mean.

Table 5. T-Test of SES of Classes For Teachers Grouped By High and Low Reported Openness Scores

| | low TOPEN group | high TOPEN group | t | p |
|---|---|---|---|---|
| mean SES | 2.75 | 3.08 | -2.75 | .01 |

We can see that the low TOPEN teachers have students with significantly lower SES scores than the high TOPEN teachers, and we can conclude that higher openness scores are generally found among higher SES students.

## The Relationship Between Openness and Some Background Variables

Several studies have sought to identiry certain teacher characteristics which are related to their teaching styles (e.g. "abstract" vs. "concrete" teachers). While we will not undertake the invention of any concepts, we will take a look at some status characteristics of teachers, and some other background variables, with respect to openness.

The relation between teacher race and openness has already been discussed. The correlation between teacher sex and openness was significant at the .05 level and indicates somewhat more openness occurs with female teachers.

A two-way analysis of variance of teacher training and experience showed significant main effects and non-significant interaction effects on both SOPEN and TOPEN. In general, openness was lower in the classrooms of more experienced teachers and higher in the classrooms of teachers who had more training.

No relationship was found between community type (rural, urban, suburban, small town, inner city) and openness. Negative correlations significant at the .01 level indicate that less openness is found in larger schools and in larger classes.

## The Relationship Between Openness and Some Educational Outcomes

One especially important outcome that is often thought to be related to informal education is the development of the students' senses of self-reliance. It is commonly believed that teachers who are more open (and therefore who use less control to direct activities) will be able to help increase students' senses of self-reliance.

In the following analysis we will first look at the relationship between openness, social class, and self-reliance, and then at the impact openness and social class and other variables have on educational outcomes.

Using the class level data, the three possible first order correlations between these variables were obtained, each pair being controlled for the effects of the third variable. The findings are reported below.

Table 6. Zero-Order and First-Order Correlations Between SES, Student Reported Openness and Student Reported Self-Reliance For All Classes in Modified Data Sample

| | Zero order correlation | | First order correlation | |
|---|---|---|---|---|
| SES X SOPEN = | .32 | (p = .001) | .33 (SRELI controlled) | (p = .001) |
| SES X SRELI = | .21 | (p = .001) | .22 (SOPEN controlled) | (p = .001) |
| SOPEN X SRELI = | -.009 | (NS) | -.08 (SES controlled) | (NS) |

We conclude from these correlations that SOPEN and SRELI are essentially unrelated; their correlation with each other is small (although controlling for SES makes it slightly stronger), and further, neither one has any effect in reducing the other's significant correlation with SES.

The final statistical analyses we have to report on are those intended to reveal the relation between openness and four outcomes, viz., achievement (reading and math), self-reliance, sense of competitiveness, and college aspirations. These school level analyses were made using a forward stepwise regression procedure.

At the school level, we forced three independent background variables into the equation first, followed by a forward stepwise regression procedure which added further variables by selecting the one from the list of those remaining which had the largest partial correlation with the dependent variable, when the effects of those already in the equation were controlled. This process was continued until the F-tolerance of the remaining variables fell below .01. Regressions were performed on reading and math achievement scores separately since some researchers in open education have reported that openness has different effects on these two achievement measures. The three background variables were SES, sex (percent of male students), and race (percent of white students). The remaining variables included all the student and teacher climate variables, as well as student and teacher openness, and an openness/SES interaction variable (called INTERAC) created by multiplying the student openness measure by the SES score for each class.

In sum we may say that the three measures of openness (SOPEN, TOPEN, INTERAC) account for only small portions of the variance in any dependent variable. These results are summarized in the table below.

Table 7. Summary of Percent of Variance Contributed to Five Dependent Variables By Background Variables and Openness Variables At the School Level

| Dependent Variable | % of Variance Due to Background | % of Variance Due to Openness* | Total % of Variance Explained |
|---|---|---|---|
| Mathematics | 35.7 | .4 | 52.6 |
| Reading | 50.4 | 5.2 | 62.2 |
| Self Reliance | 15.4 | 1.7 | 39.1 |
| Competition | 8.3 | .7 | 22.2 |
| Aspirations | 32.5 | 1.0 | 65.4 |

In no case did any of the three openness measurements have the next greatest impact on an outcome after the background variables were entered.

The school level regressions discussed above were run because no appropriate class level achievement data was available. The only outcome variables suitable for analysis at the class level are self-reliance, sense of competition and college aspirations. Similar regressions were run on these three variables at the class level with approximately the same result as the school level regressions: the openness variables did not account for much variation in the outcome variables. Results are summarized in the table below.

*The sum of the variances for SOPEN, TOPEN and INTERAC

Table 8. Summary of Percent of Variance Contributed to Three Dependent Variables By Background Variables and Openness Variables At the Class Level

| Dependent Variable | % of Variance Due to Background | % of Variance Due to Openness | Total % of Variance |
|---|---|---|---|
| Self Reliance | 9.7 | 1.8 | 30.8 |
| Competitiveness | 4.7 | 1.1 | 20.7 |
| Aspirations | 15.5 | .1 | 34.1 |

Overall, it seems fair to conclude that openness, as defined in this study, does not bear a particularly strong relationship to any of the outcome variables we have examined. While we would not expect it to bear much relation to achievement or college aspirations (based on viewpoints expressed in the open education literature), we would expect some unique connection to appear with respect to students' senses of competitiveness and self-reliance.

## Contributions

Before discussing the contributions of this study, we need to review some open education research findings found in the literature. Briefly, the literature indicates (McGhan 1977) that open teaching styles are relatively rare, and that where they do occur they still entail substantial direction of students' activities. Several writers discussed the special relation between open schools and middle-class families. The relation between openness and achievement is mixed, with a tendency for more formal schools to foster higher achievement. Open education seems to have a slightly more favorable effect than traditional education on feelings of self-worth; self-reliance may be more related to family background than to the openness of a school program; openness may produce higher

aspirations among low SES students; and cooperative behavior among students occurs more often in open classes.

The specific findings of this study contribute to the body of knowledge about informal schools and teaching styles primarily by supporting some of these other findings, and secondarily by suggesting the importance of other factors which have not yet been studied to any great extent.

The clearest single corroborative finding of this study is that open education is fairly rare; most schools and classes are classifiable as "sometimes to seldom open." Fully 93.5% of the schools (and 91.6% of the classes) surveyed fell below the mid-point of the student openness scale.

The second corroborative finding of this study is that the existence of openness is related to social class. Openness and SES were significantly positively correlated; and controlling for the effects of SES was often found to eliminate the effects that openness appeared to have on other variables.

In particular, classes with higher proportions of black students were found to be considerably less open than classes of mostly white students, this phenomenon may depend more on social class differences than on racial differences

The findings of this study further contribute to our understanding of informal education in that they agree with the Epstein-McPartland analysis (1975), which found that openness contributes relatively little to the variance in achievement, self-reliance, and college aspirations. Furthermore, we found that openness did not contribute much to the variance in competitiveness. We call particular attention to the absence of a relation between openness and self-reliance because the latter outcome is often presumed to have a fairly direct relation to the teacher's use of authority.

The final set of contributions that this study makes to our understanding of informal education concerns teacher-background characteristics, school size, and community type. Studies of these factors seem largely absent from the literature on informal education. Taking these factors in reverse order, we found no relation between openness and community type but a fairly convincing inverse relation between school and class size and openness. Since the community types were identified, for the most part, on the basis of their size, we can say that while the size of the population outside the school does not affect a teacher's use of authority, the size of the population inside the school definitely does play a role.

When we examined teacher-background characteristics, we found that student openness was not clearly related to the race of the teacher, but female teachers and teachers with more training tended to have higher teacher-reported openness scores, while the more experienced teachers tended to have lower student reported openness.

## Concluding Remarks

The findings of this study, and others in both traditional and open education, suggest that we need to learn more about how schools can fulfill both the instrumental (academic achievement, other skills) and expressive (socialization) needs of students. At this time, opponents of open education claim that such schools do not meet students' instrumental needs (while traditional schools do), and proponents of open schools claim that such schools do meet expressive needs (while traditional schools do not). Thus, instead of claim and counter-claim, we have two claims and no counter-claims. Each side claims something that is not denied by the other. (The present state of knowledge about meeting instrumental and expressive needs seems to be that they are only rarely both met at the same time. See Spaulding 1963, Etzioni 1961.)

Further study of open education should attend to the following questions. Is open education, like traditional education, class-biased in some way? We know that the incidence of open education is related to social class, but we do not know why this is so. To say that open education should not be provided for low SES children because it is not provided for them is to commit the "is-ought" fallacy and to give in to biased thinking. We should try to find out if teachers have certain evaluations of, and expectations for, lower-class children which cause them to employ a greater degree of control over students' activities. Alternatively, it is conceivable that open education is inherently class-biased. That is, it may be intrinsically less effective in meeting the instrumental needs that low SES children have and which their parents want met. Furthermore, the expressive activities fostered in open schools may somehow have a detrimental effect on lower SES children's life chances.

It is not sufficient for open school advocates to promote only the advantages of affective education and humanism for low SES students. Open education will not flourish among low SES groups unless it can demonstrate that it makes significant differences in achievement for their children.

So far, most of our recommendations for further study in open education have borne most heavily on the extension of open education to lower SES groups. But we don't even know whether or not this educational style meets the expressive needs that higher SES parents seem to value. We cite the findings on self-reliance as an example: openness does not seem to bear any relation to it.

In the absence of evidence supporting the claims of friends and foes of open education, we may well wonder if the choice between one style of education and the other is even important. The answer to this question is that we don't know, but we don't want to make any mistakes. We don't want to accept informal education if it is detrimental, or reject it if it is beneficial. If educators could demonstrate clear evidence of the harmful effects of open education, they could justifiably withdraw it from the educational market. But incontrovertible evidence is not now available, and because it is not, it seems to this writer that parents who favor the open approach should have it available to them. By the same token, teachers should not be able to elect to use an open approach where parents have no choice. The continued existence of open education will not just provide the opportunity to determine its value, but also the opportunity to learn more about the value of traditional education through informal/traditional comparisons.

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